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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/045,391

Filing Date: November 09, 2001

Appellant(s): LI ET AL.

Tyler A. Stevenson
For Appellants

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 19, 2010, appealing from the Office action
mailed August 18, 2009.

(1) Real Party in Interest

Examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

Examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1, 2, 7-12, 17-19, and 25 are currently rejected and pending in the application.

(4) Status of Amendments After Final

Examiner has no comment on Appellants' statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

Examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

Examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by Examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

Examiner has no comment on the copy of the appealed claims contained in the Appendix to the Appellants' brief.

(8) Evidence Relied Upon

6,146,757 MOR 11-2000

UNITHOX Ethoxylated Alcohols Technical Release 4022.0 (1996), Petrolite Corp.,
Polymers Division

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 7-12, 17-19, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,146,757 to Mor in view of UNITHOX Ethoxylated Alcohols Technical Release 4022.0 (herein referred to as "Technical Release 4022.0")

Regarding claims 1, 2, 7-12, 17-19, and 25, Mor teaches a wettable fiber or filament having a thermoplastic polymer, a first wetting agent and a second wetting agent (column 7 lines 65-67 and column 8 lines 1-5) useful in products such as diaper inner liners, battery cell separators and other applications (column 12 line 50 to column 13 line 54). Mor teaches that the preferred thermoplastic polymer is a polyolefin (column 9 lines 65-67) and that the polyolefin is preferably polyethylene or polypropylene (column 4 line 65 to column 5 line 8, column 5 line 65 to column 6 line 5). Mor teaches that the surface active agent, or wetting agent, is introduced into the bulk polymer resin rather than applying it to the surface of the polymer (column 14 lines 25-35). Mor teaches that incorporating the surfactant into the melt blend assists in resisting migration and transference of the surfactant (column 5 lines 45-50), and that by modifying the percentage of the wetting agent, hydrophilic, smooth fibers and nonwovens with improved textile-like feel and elongation may be formed (column 7 lines 4-62).

Mor teaches that a blend of wetting agents allows a broad range of wetting characteristics. The blend allows control over the degree of wetting and permanence which may

be obtained by varying concentrations and the ratio of the first and second wetting agents (column 14 lines 20-25). The present fibers are also useful as a blend component for other fibers whereby the thermoplastic properties as well as the wettability, softeners and lubricity of the fibers are found to be advantageous. The fibers or filaments can be in the form of a woven fabric, a non-woven fabric or a knitted (column 13 lines 25-40).

Regarding claims 1, 2, 7-12, 17-19, and 25, Mor teaches that in a preferred embodiment, a wetting agent may comprise alkoxylated fatty alcohol as a combination of an ethoxylated cetyl alcohol and an ethoxylated stearyl alcohol and preferably contains from about 2 to 10 moles of ethylene oxide condensed thereon (column 6 lines 40-45). However, Mor does not appear to specifically teach that the at least one ethoxylated aliphatic alcohol is of the formula $\text{CH}_3\text{CH}_2(\text{CH}_2\text{CH}_2)_{13}\text{CH}_2\text{CH}_2(\text{OCH}_2\text{CH}_2)_x\text{OH}$ wherein x has an average value of 2.5.

Technical Release 4022.0 teaches commercially available ethoxylated aliphatic alcohols, available at the time the invention was made and suitable for use as surfactants or wetting agents, the ethoxylated aliphatic alcohols having hydrophilic and lipophilic portions, wherein the hydrophilic portion is a substantially similar ethoxylated alcohol as Mor and wherein the hydrophobic or lipophilic portion is a substantially similar aliphatic saturated hydrocarbon chain as Mor (Technical Release pages 1-9). Technical Release 4022.0 teaches that the efficiency of the hydrophilic and lipophilic portions can be controlled by varying the starting alcohol and/or the amount of ethylene oxide (Id., page 1). Technical Release 4022.0 teaches that UNITHOX ethoxylated alcohols are a novel class of nonionic surfactants derived from very long chain, linear, synthetic alcohols (Id., page 1). Technical Release 4022.0 teaches that the average chain length of the hydrocarbon portion of the molecule can be between 26 and 50 carbons (Id., page

1). Technical Release 4022.0 teaches that chemically, UNITHOX ethoxylates can be shown as $\text{CH}_3\text{CH}_2(\text{CH}_2\text{CH}_2)_x\text{CH}_2\text{CH}_2(\text{OCH}_2\text{CH}_2)_y\text{OH}$ having an average x/y of 13/2.5 (Id., page 1).

Technical Release 4022.0 teaches that UNITHOX Ethoxylates can be used in a wide variety of applications such as emulsifiers/lubricants for textile processing and finishing and processing aids (Id., page 2). It would have been obvious to one of ordinary skill in the wettable polymer fiber art at the time the invention was made to form the wettable polypropylene fiber of Mor, substituting the ethoxylated fatty alcohol of Mor with UNITHOX 420, as taught by Technical Release 4022.0, motivated by the desire of forming a conventional wettable polymer fiber with a commercially available wetting agent suitable for use in textile processing and finishing and processing aids, and such a substitution of an ethoxylated fatty alcohol wetting agent for another ethoxylated fatty alcohol wetting agent yields a predictably resulting wettable polyolefin fiber to one of ordinary skill in the art.

Regarding claim 2, the prior art teaches that the polyolefin is polypropylene or polyethylene (Mor, column 4 line 65 to column 5 line 8, column 5 line 65 to column 6 line 5).

Regarding claims 7 and 8, the prior art teaches that the compounds of component (b), in total, are present from about 0.1% to about 15% by weight and from about 1% to about 7% by weight, based on the weight of the polyolefin of component (a) (Mor, column 7 lines 12-62). Additionally, it would have been obvious to one of ordinary skill in the wettable polymer art at the time the invention was made to optimize the percentage of component (b) since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In the present case, one of ordinary skill would be motivated to optimize component (b) based on the desired feel and elongation and compatibility with the polymer fiber.

Regarding claims 9 and 12, the prior art teaches a bi-component fiber comprising a polyolefin component, wherein the polyolefin component comprises a melt blend comprising components (a) and (b), and woven or nonwoven fabric comprising bi-component fibers (Mor, column 12 lines 18-29, column 13 lines 28-54).

Regarding claims 10, 11 and 17, the prior art teaches a woven or nonwoven fabric comprising polyolefin fibers or filaments according to claim 1 (Mor, column 12 lines 18-29, column 13 lines 28-54).

Regarding claim 11, the prior art teaches a woven or nonwoven fabric wherein the polyolefin is polypropylene or polyethylene (Mor, column 12 lines 18-29, column 13 lines 28-54).

Regarding claim 17, the prior art teaches an article of manufacture comprising a woven or nonwoven fabric selected from the group consisting of disposable diapers, training pants, feminine napkins, tampons, incontinence care products, wet and dry wipes, wound dressings, surgical capes, filter medial and battery separators (Mor, column 12 line 50 to column 13 line 54).

Regarding claim 18, the prior art teaches that the melt blend additionally comprises an ethoxylated aliphatic alcohol that is not of formula (Ia) (Mor, column 5 line 53 to column 6 line 45).

Regarding claim 19, the prior art teaches that the melt blend additionally comprises a 2 mole ethoxylated stearyl alcohol (Mor, column 6 lines 31-45, column 9 lines 23-58).

Regarding claim 25, the prior art teaches that the fiber or filament further comprises a stabilizer selected from the group consisting of hindered amine light stabilizers, phenolic

antioxidants, phosphites or phosphonites, hydroxylamines, benzofuranones and hydroxyphenylbenzotriazole, hydroxybenzophenone or tris-aryls-s-triazine UV absorbers (Mor, column 10 lines 25-53).

(10) Response to Argument

Rejection of claims 1, 2, 7-12, 17-19, and 25 under 35 U.S.C. 103(a) as obvious over Mor in view of Technical Release 4022.0

Contrary to the current rejection, Appellants argue that the combined references do not provide any motivation to substitute UNITHOX 420 for an alkoxyated alcohol of Mor, as the alkoxyated alcohols of Mor are distinct from those of the Technical Release 4022.0, and one skilled in the art, when attempting to prepare a suitably wettable polyolefin fiber, would be motivated to employ an alkoxyated alcohol of Mor and not of the Technical Release 4022.0, since Mor and the Technical Release 4022.0 describe different uses for different alkoxyated alcohols and there is no overlap of the alkoxyated alcohols of the Technical Release 4022.0 with those of Mor.

Regarding Appellants' arguments, Examiner respectfully disagrees. It should be noted that it is not disputed whether the claimed limitations are met by the combined disclosure of the prior art references (*see* Appellants' Brief at page 6). Appellants are only arguing that the prior art references do not provide motivation to one skilled in the art to substitute UNITHOX 420 for the alkoxyated alcohol of Mor.

Under 35 U.S.C. 103 (a), the obviousness of an invention cannot be established by combining the teachings of the prior art references absent some teaching, suggestion, incentive,

or predictability supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984); *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395-97 (2007). This does not mean that the cited prior art references must specifically suggest making the combination. *B.F. Goodrich Co. M Aircraft Braking Systems Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996); *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988)). A suggestion or motivation to combine references is an appropriate method for determining obviousness, however it is just one of a number of valid rationales for doing so. The test for obviousness is what the combined teachings of the prior art references would have suggested to those of ordinary skill in the art. *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). This test requires us to take into account not only the specific teachings of the prior art references, but also any inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

A patent for a combination, which only unites old elements with no change in their respective functions, obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men. *KSR* at 1395. When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious. *Sakraida v. AG Pro, Inc.*, 425 U.S. 273 (1976).

Mor teaches a wettable polymer fiber or filament comprising a first wetting agent and a second wetting agent (*see for example* Mor, Abstract), wherein the wetting agent is introduced

into the bulk polymer melt blend resin (Id., column 14 lines 25-35) to form hydrophilic, smooth fibers and nonwovens with improved “textile-like” feel and elongation (Id., column 7 lines 41-62). Mor teaches that in a preferred embodiment, a second wetting agent may comprise an alkoxylated fatty alcohol, wherein the alkoxylated fatty alcohol comprises a straight chain alkyl group and an ethoxylated alcohol (Id., column 9 lines 23-59). Therefore, Mor establishes that alkoxylated fatty alcohols or ethoxylated aliphatic alcohols are known in the wettable polyolefin fiber or filament art as wetting agents which are incorporated in a polyolefin melt blend to increase the wetting and hydrophilic properties of the fiber or filament. However, Mor does not appear to specifically teach that the at least one ethoxylated aliphatic alcohol is of the formula $\text{CH}_3\text{CH}_2(\text{CH}_2\text{CH}_2)_{13}\text{CH}_2\text{CH}_2(\text{OCH}_2\text{CH}_2)_x\text{OH}$ wherein x has an average value of 2.5. It should be noted that Appellants’ specification amendment of October 15, 2009, establishes that the claimed ethoxylated aliphatic alcohol is UNITHOX 420. Additionally, Technical Release 4022.0 establishes that UNITHOX 420 is a commercially available alkoxylated fatty alcohol or ethoxylated aliphatic alcohol.

Technical Release 4022.0 teaches commercially available ethoxylated aliphatic alcohols, available at the time the invention was made and suitable for use as surfactants or wetting agents, the ethoxylated aliphatic alcohols having hydrophilic and lipophilic portions, wherein the hydrophilic portion is a substantially similar ethoxylated alcohol as Mor, and wherein the hydrophobic or lipophilic portion is a substantially similar aliphatic saturated hydrocarbon chain as Mor (Technical Release pages 1-9). Technical Release 4022.0 teaches that the efficiency of the hydrophilic and lipophilic portions can be controlled by varying the starting alcohol and/or the amount of ethylene oxide (Id., page 1). Technical Release 4022.0 teaches that the

UNITHOX ethoxylates can be shown as $\text{CH}_3\text{CH}_2(\text{CH}_2\text{CH}_2)_x\text{CH}_2\text{CH}_2(\text{OCH}_2\text{CH}_2)_y\text{OH}$ having an average x/y of 13/2.5 (Id., page 1). Technical Release 4022.0 teaches that UNITHOX ethoxylates can be used in a wide variety of applications such as emulsifiers/lubricants for textile processing and finishing and processing aids (Id., page 2). Therefore, based on the totality of the teachings of the prior art, it would have been obvious to one of ordinary skill in the wettable polymer fiber art at the time the invention was made to form the wettable polypropylene fiber of Mor, substituting the ethoxylated fatty alcohol of Mor with UNITHOX 420, as taught by Technical Release 4022.0, as Mor teaches and suggests that ethoxylated aliphatic alcohols are known in the wettable polyolefin fiber or filament art as suitable wetting agents which are incorporated in a polyolefin melt blend to increase the wetting and hydrophilic properties of the fiber or filament, and motivated by the desire of forming a conventional wettable polymer fiber with a commercially available wetting agent suitable for use in textile processing and finishing and processing aids, and such a substitution of an ethoxylated fatty alcohol wetting agent for another ethoxylated fatty alcohol wetting agent yields a predictably resulting wettable polyolefin fiber to one of ordinary skill in the art.

Appellants argue that the performance of UNITHOX 420 as a melt additive to improve the wettability of polyolefin fibers is unexpected and is not predictable. In support, Appellants recite that UNITHOX 420 displays a water absorption of 450%, and UNITHOX 480 and 750 display a water absorption of 280% and 150% respectively, as shown in the Gande Declaration of October 26, 2006. Additionally, Appellants recite that UNITHOX 420 displays a liquid absorption capacity of 74% and UNITHOX 550 has a liquid absorption capacity of 30%, as shown in the Gande Declaration of May 7, 2007. Therefore, Appellants argue that UNITHOX

420 is superior in providing polyolefin fibers with liquid absorption characteristics, and that the outstanding results are unexpected and could not have been predicted based on the cited art.

Regarding Appellants' arguments, Examiner respectfully disagrees. It should be noted that each of Appellants' Declarations recite *liquid* absorption capacity. Preliminarily, it should be noted that Declarant recites in each of the Declarations at page 2 that "the following experiments were performed by me or under my supervision." It is unclear whether Declarant actually performed any of the experiments, and therefore has actual and personal knowledge of the experiment and liquid absorption capacity values, or whether Declarant merely supervised the experiment. Therefore, it is unclear if Declarant is attesting to actual and personal knowledge of the experiment and liquid absorption capacity values relied upon by Appellants, or if Declarant is merely attesting to knowledge that an experiment regarding liquid absorption capacity values was performed.

Regarding Appellants' arguments, first, it is already established that the combined teachings of the prior art meet the limitations of the claims (see Appellants' Brief at page 6). It is reasonable for one of ordinary skill in the art to expect that any properties associated with the prior art combination naturally flow from the teachings of the prior art, as the prior art combination meets the limitations of the claims. A mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979). The fact that Appellants have recognized another advantage which would naturally flow from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Therefore, Appellants' arguments that the prior

art does not teach the claimed invention, or that any results are unexpected and not predictable, are not consistent with Appellants' recitation that the combined teachings of the prior art already meet the limitations of the claims.

Second, Appellants are not claiming water absorption or liquid absorption capacity.

Therefore, Appellants' arguments are not commensurate in scope with the claimed invention.

Third, different compounds will invariably produce different results. However, Appellants have not shown how any results are unexpected and/or not predictable. The prior art teaches that incorporating wetting agents, such as alkoxylated fatty alcohols, into polypropylene or polymer fibers, was known to predictably form a composite with high permanence of wettability (Mor, column 12 lines 51-65), including very good wettability with water (Id., column 17 lines 37-41). Additionally, each of UNITHOX 420, UNITHOX 480, UNITHOX 750, and UNITHOX 550 each comprise various hydrophilic and lipophilic portions. As shown in Technical Release 4022.0, UNITHOX 420 and 480 comprise similar "x" values or straight chain alkyl groups but different "y" values or ethylene oxide units, and UNITHOX 750 and 550 each comprise dissimilar "x" and "y" values as compared to UNITHOX 420. Additionally, Technical Release 4022.0 specifically recites that the relative efficiency of the hydrophilic and lipophilic portion of the molecule can be controlled by varying the starting alcohol and/or the amount of ethylene oxide (Technical Release 4022.0, page 1). Therefore, since each of the UNITHOX compounds comprise varying combinations of hydrophilic and lipophilic portions, and since the prior art teaches and suggests that varying the ethylene oxide units vary the hydrophilicity and lipophilicity of the ethoxylated alcohol, the UNITHOX compounds will invariably comprise varying predictable characteristics and properties.

At best, Appellants' Declarations have only further evidenced that different compounds will produce different results, but not necessarily any unexpected or unpredictable results. It should be noted that a comparison of UNITHOX 420 and 480 only shows that lowering the ethylene oxide weight percentage increases the liquid absorption capacity percentage. A comparison of any differences in the liquid absorption capacity of UNITHOX 420 and 750 is inconclusive as both the number of alkyl groups and ethylene oxide units vary. Similarly, a comparison of any differences in the liquid absorption capacity of UNITHOX 420 and 550 is inconclusive as both the number of alkyl groups and ethylene oxide units vary. Therefore, Appellants have not shown that the prior art combination is necessarily differentiated from the claimed invention, as Appellants' Rule 132 Declarations do not compare the claimed invention to the closest prior art, and since it is not disputed that the prior art combinations meets the limitations of the claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Examiner, Art Unit 1786

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